

Remarks

This application has been carefully reviewed in light of the Office Action of April 7, 2003. By this Amendment, independent claims 1, 31, and 32 have been amended in order to specifically recite that the core layer is bonded to the surface layer. While this would appear to be already required in the claims by the later recitation in each claim of an inter-layer bond strength, the foregoing amendments are made in order to provide a clear antecedent basis for the recitation of the inter-layer bond strength. Reconsideration and allowance of this application is respectfully requested for the reasons set forth below.

The rejection of claims 1, 2, 4 6-10, 27, 28, 31 and 32 as under 35 U.S.C. § 102 as anticipated by U.S. Patent No. 6,086,982 to Peiffer et al. is respectfully traversed. Applicants' invention as set forth in independent claim 1 comprises a multi-layer biaxially-oriented polyolefin film which comprises a co-extruded core layer and a surface layer bonded together, wherein the surface layer comprises a heat sealable thermoplastic polymer. The core layer is formed of an ethylene/propylene copolymer having an isotactic structure and containing ethylene in an amount of 1 wt.% or less which is effective to provide an enhancement in the inter-layer bond strength of at least 15%. This enhancement in inter-layer bond strength is measured against the corresponding inter-layer bond strength resulting from a film in which the core layer is formed of an isotactic polypropylene homopolymer. Independent claim 31 calls for an enhancement of inter-bond strength of at least 50% and independent claim 32 calls for an enhancement of inter-layer bond strength of at least 30% with an ethylene content in the core layer between 0.3 and 0.5 wt.%. Claims 4 and 6 depend from claim 1 and call for an ethylene content in the core layer between about 0.5 -- 0.8 wt.% and between about 0.1 – 0.2 wt.% respectively. Claim 7 depends from independent claim 31 (reciting an enhancement in the inter-

layer bond strength of at least 50%) and specifies a ethylene content of about 0.5-0.7 wt.%. Dependent Claim 28 also recites an ethylene content within the range of about 0.05-0.08 wt.% for the core layer.

The patent to Peiffer does not disclose nor make any reference to the use of a small amount of ethylene in an ethylene/propylene copolymer to enhance inter-layer bond strength between a core layer core and a surface layer. In fact, Peiffer make no reference to bond strength, and the use of ethylene in any amount to enhance the inter-layer bond strength between adjacent layers of a multilayer film is not even remotely addressed in the Peiffer reference. In summary, Peiffer fails to disclose an enhancement in the bond strength between surface and core layers as required in applicants' claims and further contains absolutely no disclosure of any kind respecting the inter-layer bond strength between surface and core layers of a multi-layer film.

As the Office Action is understood, the Examiner acknowledges that the patent to Peiffer does not disclose an enhancement in inter-layer bond strength as called for in claims 1, 31 and 32, nor, for that matter, does it disclose the heat seal characteristics called for each of these claims. Instead, the Office Action relies upon an alleged inherency to provide the claim limitations which are not found in the prior art.

As noted above, the heat sealable characteristic of the surface layer and the enhanced inter-layer bond strength at the low ethylene content called for in applicants' invention are not found in the Peiffer et al reference. To the extent an alleged inherency of the interlayer bond strength is relied upon, applicants would respectfully refer to the provisions of the MPEP on this subject. The requirements for a rejection based upon an alleged inherency of subject matter not disclosed in a reference is stated in MPEP §2112 as follows:

The fact that a certain result or characteristic may occur or be present in the prior art is not sufficient to establish the inherency of that result or characteristic. (emphasis original.)

Section 2112 reflects the general rule that for inherency to reside, it must be shown that the alleged inherency is necessarily present and not a mere possibility. Thus, as stated by the Board in *Ex parte Keith*, 154 USPQ 321 (Bd. of App. 1966), in reversing the Examiner's rejection based upon inherency:

There are other possible courses the reaction could follow . . . Asserted inherency must be a necessary result and not merely a possible result.

As indicated in Section 2112, this principle was more recently followed by the Board in *Ex parte Levy*, 17 USPQ2d 1461, 1464 (Bd. of App. and Interf. 1990), where the Board reversed an inherency rejection, stating as follows:

In relying upon the theory of inherency, the examiner must provide a basis in fact and/or technical reasoning to reasonably support the determination that the alleged inherent characteristic necessarily flows from the teachings of the prior art (citing cases). (emphasis original)

There is, of course, no such basis in the present situation.

In summary, the prior art reference does not disclose a 15% enhancement in inter-layer bond strength for an ethylene/propylene copolymer having a maximum ethylene content of 1 wt.%, as called for in claim 1. It does not disclose that the surface layer comprises a thermoplastic polymer capable of forming an effective heat seal with a corresponding thermoplastic polymer upon heating and compression. On the contrary, one of ordinary skill in the art would assume that such heat sealable characteristics would not necessarily be present in the Peiffer films since the uses for such films include insulating films in capacitors. The

reference further fails to disclose ethylene-propylene copolymers of even lower ethylene content as specified in claims 4, 6, 7 and 28, nor is there any suggestion that even greater enhancement in inter-layer bond strength can be achieved as specified in claims 31 and 32.

As discussed below, it is respectfully submitted that the disclosure in Peiffer of a very broad ethylene content in an ethylene/propylene copolymer does establish anticipation or otherwise negate patentability of claims directed to very narrow ethylene contents as set forth in applicants' claims. However, this issue aside, it is noted that the various disclosures in Peiffer relating to ethylene content appear to be directed to copolymers or terpolymers which are used to form the so called top plys of the Peiffer film and not the core layer. In this respect the material referenced in the Office Action at column 5 line 57 through column 6 line 37 of Peiffer, appears to be directed to homopolymers, copolymers, and terpolymers which are used in the top plys of the Peiffer multilayer film. To the extent copolymers are involved, the ethylene content is from 1 to 10 wt.%, preferably 2.5 to 8 wt.%. If one skilled in the art were to construe the Peiffer disclosure as suggesting these top ply formulations for the core ply of a multilayer film, the result would clearly be an ethylene content well in excess of that called for in applicants' claims.

As stated above, the disclosure in Peiffer regarding the ethylene content of ethylene/propylene copolymers appears to be directed to the ethylene content of copolymers employed in surface plys of the Peiffer film. The discussion found in the abstract of Peiffer does not appear to address this issue. To the extent the discussion found in column 4, lines 11-23 of Peiffer, which addresses ethylene contents in ranges much broader than those called for in applicants' claims, is relied upon, it is noted that this discussion in column 4 is not directed to the core layer or base layer of a multilayer film. In fact, since as noted above, the reference later in the specification addresses various homopolymers, copolymers and terpolymers useful in top

plies, presumably the disclosure found in column 4, lines 11-23 is likewise directed to top plies. In any case, applicants would respectfully submit that this broad disclosure in Peiffer would not anticipate or render obvious applicants' claimed range of 1% or less or the narrower ranges of .05-0.8, 0.5-0.7 or 0.1-0.2% as more specifically set forth in applicants' claims. In this regard, it is believed to be well settled that the existence in the prior art of a broad range which might encompass a claimed narrower range does not in itself establish anticipation or novelty of such narrower range. On this issue, attention is respectfully invited to *In re Russell*, 169 USPQ 426, (CCPA, 1971) wherein the court in reversing the rejection of the claims stated at page 428:

Essentially, applicant's contention is that the employment of the proportions recited in the claims unexpectedly yields clear compositions without the need for a filtration step. Applicant's position on the law is sound, for even though part of applicant's range of proportions, and all of his ingredients, are suggested by the broad teaching of Wei, if applicant can establish that his relatively narrow ranges yield unexpectedly superior results as against the broad Wei ranges as a whole, applicant will have established unobviousness of the claimed invention. See *In re Luvisi*, 51 CCPA 1063, 343 F.2d 102, 144 USPC 646 (1965); *In re Neave*, 54 CCPA 999, 370 F.2d 961, 152USPQ 274 (1967).

For a similar holding, reference is made to *In re Waymouth and Koury*, 182 USPQ 290 (CCPA, 1974). In this case, the claims on appeal were directed to a lamp having an arc tube containing halogen in mercury atoms present in a ratio of 0.08 to 0.75. The prior art reference disclosed a similar device containing halogen and mercury atoms. The calculated ratio of halogen to mercury atoms inherently disclosed in the reference ranged from 0.0000001 to 1.3. Although the prior art range enveloped the narrower range claimed by the appellant there, the court reversed the rejection of the claims in view of the unexpectedly superior results achieved by operating within the claimed range. For further decisions of the Board of Patent Appeals and Interferences on the issue of claimed ranges, reference is made to the companion cases of Ex

parte Peterson, 228 USPQ 216 (1985) and Ex parte Peterson, 228 USPQ 217 (1985).

In the present case, similarly as in the above cited decisions, applicants' invention involves the use of a very narrow range of ethylene content to produce enhanced interlayer bond strengths which are not taught by the prior art and which lead to unexpectedly superior results which are not recognized by the prior art.

It is noted that the patent to Peiffer is directed to polypropylene films that may be single ply or multilayer which are configured to have low shrinkage values. To the extent that Peiffer involves a multilayer film, it does not call for a surface layer capable of forming an effective heat-seal as required in each of applicants' claims. In fact, Peiffer makes absolutely no reference to heat-sealability of the surface layer of a multilayer film. The subject of heat sealing is discussed only in reference to films for the wrapping of cigarette packs. Such films presumably would be single ply structures. Further and as noted previously, the nature of the products, in which the low shrinkage achieved in Peiffer is employed, would include products such as insulating materials in capacitors. Clearly, there would be no reason for such dielectric products to have a heat-sealability characteristic as specified in applicants' claim.

The patent to Peiffer is also devoid of any reference to inter-layer bond strength. Further, the patent to Peiffer contains no disclosure of a multilayer film incorporating a core layer that is treated in any respect to enhance the inter-layer bond strength. Clearly, Peiffer does not disclose the use of an ethylene/propylene copolymer as a core layer in a biaxially oriented multi-layer film in which the ethylene content is 1 wt.% or less as specified in claim 1 or within the other low levels of ethylene content as specified in claims 4, 6, 7, 28, and 32. In fact, in Peiffer, where ethylene is present in a multilayer film, it is present in a top layer and not in the base layer.

For the reasons advanced above, it is respectfully submitted applicants' claims are not anticipated by the patent to Peiffer. Accordingly, in early reconsideration in allowance this application is respectfully requested.

The Commissioner is authorized to charge our Deposit Account Number 12-1781 for any fee that may be due in connection with this communication.

Respectfully submitted,



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